8. Water Resources

Very Short Answer

1. Question

What do you mean by water management?

Answer

Water management is the method by which the rainwater that gets drained to seas and rivers is conserved and stored for various purposes such as irrigation, drinking water, electricity generation, etc., The conservation and management of water is needed to face situations like drought, famine, and failure of monsoon. Many multi-purpose projects are undertaken by the various levels of Government to conserve water.

2. Question

Which is a longest man-made canal of India?

Answer

The Indira Gandhi canal is the longest man-made canal of India. The canal measures 649 km in length. 169 km of this canal is in Punjab, and 14 km is in Haryana, and the rest is in Rajasthan. This canal was previously known as the Rajasthan canal. The canal starts from Harike Barrage which is on the banks of the rivers Sutlej and Ravi.

3. Question

Which is the longest dam in India?

Answer

The Hirakud dam is the longest dam in India. The dam measures 4801 meters and can store 810 crore cubic metres of water. This dam is built across the river Mahanadi and is at a distance is 14 km from Sambhalpur.

4. Question

What is meant by Bairaj?

Answer

Bairaj is an artificial barrier which is constructed across a river to store water, prevent floods and for the use of irrigation and power generation. Kota Bairaj is one among the Chambal Valley Project of Rajasthan. Water which is released from other dams gets diverted to the districts of Rajasthan through Kota Bairaj.

5. Question

In which parts of Rajasthan, Tankas are built for water preservation?

Answer

Tankas are built for water preservation in the Western parts of Rajasthan. The tankas are the traditional technique of rainwater harvesting. These tankas are 4 to 5 metres deep cylindrical tank-like structures. These are constructed out of stone whose upper part is usually covered. Most of the tankas in Rajasthan are constructed under Jal Swavlamban scheme.

6. Question

Gadisar Lake and Gajrupsagar are popular in which district?

Answer

Gadisar Lake and Gajrupsagar are popular in Jaisalmer district of Rajasthan. Gadisar lake is built by Raja Rajwal Jaisal who was the first ruler of Jaisalmer.

7. Question

Which Multipurpose project is aimed at the development of tribal areas of Rajasthan?

Answer

Jakham project is aimed at the development of tribal areas of Rajasthan. This Jakham dam is built on the river Jakham. The stored water is used for irrigation in the areas of Chittorgarh, Udaipur, and Pratapgarh. These are the areas where the tribal population live.

8. Question

Which dam is built by clay?

Answer

Panchana dam is built by clay.

This dam is built on the confluence of five rivers namely Barkhera, Bhadrawati, Machi, Bhaisawata and Ata. Confluence refers to the point at which the rivers meet. The stored water aids in irrigating the fields of the villages namely Tedabhim, Hindaun, and Gangapur.

Short Answer

1. Question

Which projects are operated by central and state governments?

Answer

Plenty of rainwater gets wasted by getting drained into rivers, oceans or seas. In order to save this rainwater and using it to manage situations of drought and famine, many multipurpose projects are started in India. The purpose of the multipurpose project is the storage of water which can be used for many purposes like irrigation, generation of electricity, etc.,

In India, these multi-purpose projects are operated and managed by the Central and the State Governments.

Projects operated by Central Government:

a. Bhakra Nangal

b. Hirakud

c. Kosi

d. Rihand

e. Damodar

f. Tehri

Projects operated by State Government:

a. **Chambal Project**:

This project is operated by the Governments of Madhya Pradesh and Rajasthan.

b. **Nagarjuna Sagar Project**:

This project is operated by the Government of Andhra Pradesh.

c. **Tungabhadra Project**:

This project is operated by the Government of Andhra Pradesh and Karnataka.

d. **Sardar Sarovar Project**:

This project is jointly operated by the Governments of Gujarat, Madhya Pradesh, and Rajasthan.

e. **Mayurakshi and Farakka Project**:

This project is operated and managed by the Government of West Bengal.

f. **Mahi Project**:

This project is operated by the Governments of Gujarat and Rajasthan.

g. **Gandak Project**:

This project is operated by the Governments of Bihar and Uttar Pradesh.

h. **Machkund Project**:

This project is operated by the Governments of Andhra Pradesh and Odisha.

2. Question

What is the need for water independency?

Answer

Water independency is needed to face the situation created by a shortage of water.

1. Many factors have led to a crisis of water.

2. Poor maintenance of water sources, reduction in groundwater level, failure of monsoon, etc., are some of the factors.

3. Moreover, the demand for water has increased due to the increase in population.

4. Hence, adequate measures have been taken to face this situation.

5. Many projects like Jal Kranti Abhiyan and Mukhya Mantri Jal Swavlambhan Abhiyan have been launched to manage these water sources effectively and efficiently and also creating awareness about the need of the hour.

6. These projects aim at the creation of new water conservation sources and also the development of existing water conservation methods for successful management of rainwater.

Hence, water independency has become mandatory to overcome the present situation without compromising the needs of the future.

3. Question

What are stepwells? Explain.

Answer

Stepwells are one of the water conservation methods that are used traditionally in Rajasthan.

1. These stepwells are wells with water which can be reached by getting down a number of steps.

2. Stepwells are either circular or rectangular multistoreyed structures.

3. They are called as Bawdi in Rajasthan.

4. Steps that lead to the water stored underground are intricately carved.

5. The pillars are very beautiful, and the windows are carved with the images of water Gods.

6. Most of the stepwells are found in the district of Bundi as it is called the city of stepwells.

7. There are many other popular stepwells like Tapi of Jodhpur, Bhandarej of Dausa, Vinata of Chittoor and Chand stepwell of Abhaneri.

8. These stepwells help people to quench their thirst during the hot summer season.

9. These stepwells remain cool during summers.

The water stored in stepwells are also used for irrigation. The chambers around these structures have beautiful carvings and are of architectural significance.

Thus, these stepwells are used to conserve water.

4. Question

What is Khadin? Explain.

Answer

Khadin is one of the methods of water conservation followed in Rajasthan.

1. In this method, concrete or mud wall is erected to collect water that flows through the hills.

2. The excess water is used to irrigate the adjoining land areas.

3. The water thus conserved by this khadin system helps to maintain the humidity.

4. This also helps in the conservation of soil.

5. This system helps in the cultivation of Rabi and Kharif crops.

6. This method of water conservation helps in the supply of drinking water during summers.

It can be said that this khadin method of water conservation was adopted by Paliwal Brahmins in Jaisalmer.

5. Question

Explain about Bhakra Nangal Project.

Answer

The Bhakra Nangal Project is the biggest multi-purpose project in India.

1. This project is named after the construction of two dams, one Bhakra, and the other one Nangal, across the river Sutlej in the state of Himachal Pradesh.

2. The construction of this dam was started in 1948 and was completed in 1963.

3. This major multi-purpose project also comprises of the construction of the Nangal Hydel powerhouse and two more powerhouses in Ganguwal and Kotla.

4. The Bhakra and Nangal dams are built in Ambala district of Punjab.

5. The Bhakra dam which is 518.16 metres long and 167.64 metres high is the biggest straight positioned dam in the world.

6. The Nangal dam is built 13 km below the Bhakra dam.

7. Canals like Bhakra, Sirhind, Nangal, Bist Doab and Narwana were also dug out.

8. This project also helps in the generation of electricity.

Thus, the Bhakra Nangal project helps in the supply of water for irrigation and drinking purpose to the areas that lie between the Sutlej and Yamuna rivers.

6. Question

Why water conservation techniques are adopted in Rajasthan?

Answer

Water conservation techniques are widely adopted in Rajasthan.

1. Most parts of Rajasthan lie in the Thar desert region.

2. The state is seen to have scanty rainfall and is prone to drought.

3. For a water scarce state like Rajasthan, it is much necessary to store and conserve the rainwater which otherwise gets drained to oceans and seas.

4. The traditional methods of water conservation include the building of stepwells, ponds, lakes, Nadis, Tankas, etc.,

5. Many multi-purpose projects like the Chambal valley project, Bisalpur project, Mahibajaj Sagar project, etc., have been started post-independence joining hands with other state governments.

6. Other water conservation projects like Sidhmukh project, Narmada project, Jawai Dam project, etc., have been implemented by the Government of Rajasthan.

7. Many dams have been built, and several canals have been dug out in these projects.

8. Water stored in these dams are used for irrigation as well as power generation.

9. Construction of minor irrigation tanks, Contour trenching, Gully plugging, etc., are also developed to save even a micro drop of water.

Hence, adopting water conservation techniques is very important for a dry state like Rajasthan.

7. Question

Explain the Bisalpur Project.

Answer

Bisalpur project is one of the multi-purpose projects of Rajasthan.

1. This dam is constructed across the river Banas in Tonk district.

2. The dam was constructed between 1997-1998.

3. This dam is about 574 metres long and 39.5 metres high.

4. This main aim of this project is irrigation and supply of drinking water.

5. This dam helps in irrigating the fields of Sawai Madhopur and also another 265 villages in the district of Tonk.

6. Drinking water is provided to Jaipur, Ajmer, Kekadi, Sarwar, Beaver, and other roadside villages.

7. There are two canals one on the right and the other on the left side of the dam.

These multi-purpose projects help in the storage of water in the state of Rajasthan.

Long Answer

1. Question

Explain the different form of water conservation in Rajasthan.

Answer

Water conservation refers to the prevention of wastage of rainwater and storing it by the construction of dams, canals, lakes, etc., in order to use it in times of need.

The different forms of water conservation in Rajasthan are as follows:

Traditional methods:

1. Stepwells:

a. Stepwells are structures in which water is stored underground and could be reached by climbing down a number of steps.

b. There are huge chambers with pillars that are intricately carved.

c. Water stored in the stepwell is also used for irrigation purpose.

d. This water is used for drinking purposes during summer.

e. The stepwells are cool during summer.

f. Some of the important stepwells in Rajasthan are Tapi stepwells of Jodhpur, Bhandarej stepwell of Dausa, Vinata stepwell of Chittor and Chand stepwell of Abhaneri.

2. Ponds:

a. Water collected in ponds is the main source of water for the livestock.

b. Ponds are mostly built near the temples or places of religious sentiments.

c. Hence, people volunteer themselves for the maintenance of these ponds.

d. Some of the important ponds in Rajasthan are Hemawas pond in Pali, Saleri and Meja pond in Bhilwara, Banakia and Senapani pond in Chittoor.

3. Lakes:

a. Lakes were constructed by the kings, traders, and banjaras.

b. These lakes are the main sources of conservation of rainwater.

c. The lakes and the canals dug from these lakes serve as a source of water for irrigation.

d. Anasagar lake of Ajmer, Pichola and Fatehsagar lakes of Udaipur, Talchappar of Churu, Tordi Sagar of Tonk, etc., are some important lakes.

4. Nadi:

a. Nadis are the village ponds.

b. They are mostly found in Western Rajasthan.

c. Nadis are used to store rainwater.

d. These are found in dune areas and sandy plains.

e. Nadis are usually 4 to 5 meters deep.

f. Hence, the quantity of rainwater that can be stored in nadis is relatively less.

5. Tanka:

a. Tankas are the cylindrical structures which are usually 4 to 5 metres deep.

b. The upper side of the tankas is usually covered with stone.

c. These tankas are used for harvesting the rainwater.

d. Most of the tankas in Rajasthan are built under Jal Swavlamban Scheme.

e. Tankas are the methods of water conservation.

6. Johad:

a. Johads are the water conservation sources that are owned by communities.

b. The Johads are used for recharging the groundwater and also for other domestic purposes.

c. Johads are dug out in areas where the accumulation of rainwater is possible.

7. Beri:

a. Beris are small wells which are 5 to 6 meters deep and whose circumference measures 2 to 3 feet.

b. The walls of these beris are constructed using stones.

c. The water stored is used during the summer season.

d. Beris are commonly found in Barmer and Jaisalmer.

8. Khadins:

a. In this method, concrete or mud wall is erected to collect water that flows through the hills.

b. The excess water is used to irrigate the adjoining land areas.

c. The water thus conserved by this khadin system helps to maintain the humidity.

d. This also helps in the conservation of soil.

e. This system helps in the cultivation of Rabi and Kharif crops.

f. This method of water conservation helps in the supply of drinking water during summers.

Modern methods:

Modern methods of water conservation include construction of dams and canals under various multi-purpose projects. Some of the important projects in Rajasthan include:

a. Jakham project

b. Som-Amba-Kamala project

c. Meja dam

d. Sidhmukh project

e. Narmada project

f. Jawai dam project

g. Panchana dam

Major multi-purpose projects include:

a. Bhakra Nangal Project

b. Hirakud Project

c. Damodar project

d. Indira Gandhi canal project

e. Chambal valley project**.**

These are the different methods of water conservation in Rajasthan.

2. Question

Explain the Indira Gandhi Canal Project of Rajasthan?

Answer

Indira Gandhi Canal is the largest man-made canal in Asia. This canal was earlier called as the Rajasthan Canal.

1. The canal measures 649 km in length.

2. 169 km of this canal is in Punjab, and 14 km is in Haryana, and the rest is in Rajasthan.

3. The canal starts from Harike Barrage which is on the banks of the rivers Sutlej and Ravi.

4. 9 districts, 29 towns and 3461 villages of Rajasthan get drinking water from this canal.

5. There are two canals, one is the Rajasthan feeder, and the other one is the main canal.

6. The Rajasthan feeder is approximately 204 km in length, and the main canal is 445 km in length.

7. The Rajasthan feeder runs from the point of origin to Masitawali.

8. The main canal runs from Masitawali to Mohangarh.

9. There are many lift canals from this main canal.

10. These lift canals are dug out for the purpose of irrigation and supply of drinking water.

11. There are totally seven lift canals which irrigate nearly 17.41 hectares of land.

Thus, the Indira Gandhi Canal which helps in supply of water is extended to Garra road of Barmer.

3. Question

Explain the Mukhyamantri Jal Swavlamban Abhiyan.

Answer

Mukhyamantri Jal Swavlamban Abhiyan is one of the schemes launched by the Government of Rajasthan with the objective of effective implementation of water conservation and rainwater harvesting activities.

1. The scheme aims at maintaining the quality and level of groundwater.

2. The renovation of the old and existing sources of water like wells, lakes, and ponds, etc., is also a part of this scheme.

3. The scheme will also bring in new sources of rainwater harvesting in the villages.

4. All the departments of the government coordinate with each other under this scheme such that nearly 21,000 villages in the state will be benefitted.

5. The Government of Rajasthan and other Non-Government Organisations join hands with each other in the construction of contour trenches, stray guard, farm pond, khadin, tanka, johad, mini percolation tanks, and gully pits.

6. The cooperation of the villagers is also sought.

7. The scheme also aims at the construction of other water reservoir structures.

8. The other aims of this scheme include construction of artificial groundwater refilling structures, maintenance and renewal and reinforcement of irrigation tank, improvement of pasture lands and plantation.

9. The development of forest, land, and water and also irrigation of lands through rainwater harvesting and conservation is also one of the objectives of this scheme.

10. Efforts are taken to make the villages self-sufficient in terms of water so that scarcity of drinking water will be put to an end.

Above all, awareness is created among the villagers regarding the need for conservation of water through various promotional activities like street plays, rallies, and fairs.

4. Question

Describe any two projects operated by the government of India.

Answer

Multi-purpose projects are large-scale projects which include construction of dams, canals, pipelines, etc., to store water for irrigation, power generation, and many other useful purposes.

These projects are operated either by the Government of India or as a joint venture by two or more state governments.

Some of the projects which are operated by the Government of India are:

a. Hirakud Project:

1. The Hirakud dam is the longest dam in the world.

2. This dam is built across the river Mahanadi.

3. Hirakud dam can store 810 crore cubic metres of water and is about 4801 metres in length.

4. This dam is constructed at a distance of 14 km from Sambhalpur.

5. This dam is constructed to prevent flood during monsoon as the river Mahanadi is called as the Sorrow of Odisha.

6. Two canals Borgarh and Sesan are dug, and four powerhouses are built in this project.

b. **Damodar Valley Project**:

a. River Damodar is a tributary of river Hugli, is called the Sorrow of Bengal.

b. This river flows for about 290 metres in the state of Jharkhand and 240 km in West Bengal.

c. This river floods quite often and devastates the area, and as a preventive measure, the Government of India joined hands with the Government of West Bengal and Jharkhand for this project.

d. Damodar Valley Corporation was established.

e. Three dams namely Balpahari, Menthan, and Tilaiya, are built across river Barakar.

f. Bokaro dam across river Bokaro, konar dam across river Konar are also constructed.

g. Eight dams such as Balpahari, Barmo, and Aghar are constructed across river Damodar.

h. Three Hydroelectric plants are set up in Bokaro, Chandrapur, and Durgapur.

Besides these, there are many other projects which are operated by the Central Government all over India for the conservation of water.